

## Perceptions and attitudes of clinical year's medical students towards assessment tools used in Northern Border University, Arar

Perceptions and attitudes of medical students towards assessment tools

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### Abstract

**Aim:** In this study, we aimed to determine the perception and attitudes of clinical years' medical students of 4<sup>th</sup> - 6<sup>th</sup> year toward the assessment tools used in the Faculty of Medicine, Northern Border University, Arar, Saudi Arabia.

**Material and Methods:** This cross-sectional study was conducted in the college of Medicine from September to November 2020. A multistage stratified random sample method was used to select 270 medical students of clinical year's (4th -6th year). The respondents' perceptions of the preferred type of traditional written examination multiple-choice questions (MCQs), short essay questions (SEQs) as good tools for assessing basic theoretical knowledge regarding the subject were determined. Student's perceptions towards Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OSPE), problem- based learning (PBL) clinical short and long cases were also assessed. Furthermore, perceptions towards relatively recent non-traditional methods such as log book/assignments, open-book exam, and clinical presentations/seminars were also determined. A questionnaire will be provided for the degree of agreement assessment by 3- points Likert scale (1-Agree, 2- Neutral 3-disagree).

**Results:** This study included 270 medical students, of whom, 162 (60%) were females and 108 (40%) were males. About half (49%) of participants agreed that assessment methods are comprehensive, reflect what they were taught, and challenge them. Multiple-choice questions were the commonest (60%) preferred written assessment format. OSCE (56.6%) and OSPE (54.8%), as well as long and short clinical cases (52.6%), were considered good tools for assessing clinical competencies and skills. Students had good perceptions towards problem-based learning, log-book/assignments and clinical presentations. Male students preferred problem- based learning (PBL) more than female students.

**Discussion:** This study concludes that according to medical students of clinical year's the most useful assessment tool for written examination was MCQs for assessing basic theoretical knowledge, and regarding clinical assessment tools, OSCE was preferred. Student feedback and advanced assessment techniques can help health education professionals overcome the flaws of either method.

### Keywords

Perceptions and attitudes; Medical students; Assessment tools; Clinical competencies

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## Introduction

Medical education is the art and science of medical learning which has rapidly progressed in recent years. Adequately measuring core competencies of the medical students is a vital constituent of evaluation, providing reliable feedback, and improving medical education [1]. Assessment is an essential component of medical education because of its implications on the students, teachers, communities and the whole world after graduation from their medical schools [2]. Assessment is an integral component of overall educational activities and a vital tool, which drives student learning, because students usually tend to concentrate on the material to be assessed [3]. Furthermore, the selected assessment method should be consistent with the objectives of the curriculum. Studying medical curriculum requires a big deal of cognitive abilities, positive attitudes, time management, positive feelings, and reactions to the challenges that occur during the training [4]. Assessing student performance is a very important and complicated process [5], when the learning goals involve the acquisition of skills that can be demonstrated through action. The quality of academic performance and achievement among medical students are essential parts for the success of the educational process. The determinants of students' performance have been the subject of current discussion among medical educators [6]. The use of a variety of assessment methods has become a characteristic of medical education, credentialing, and licensure since the 1950s [7]. However, the evaluation of competences using traditional examination has its limitations because of low validity and reliability [8]. Comparatively new non-traditional assessment methods (log book, open-book exam, simulations, self and peer assessments) have been introduced in medical education in the last decades. They are believed to be reasonable as they measure qualities, skills and competences. Clinical presentation models are intended to ensure that the medical students not only acquire appropriate scientific and clinical knowledge, but also the practical procedures and communication skills. This leads to obtaining most of the learning domains mainly cognitive, affective and psychomotor [9,10].

A new hybrid system-based curriculum was launched in 2011 at the Faculty of Medicine, Northern Border University in Arar [11]. Although evaluation of the perception of medical students regarding their assessment has an essential impact on the educational process, we plan to conduct such a study on this subject. The aim of the current study was to obtain perceptions from medical students of clinical years' from 4<sup>th</sup> year to 6<sup>th</sup> year on the assessment methodologies used in the Faculty of Medicine, Northern Border University, Arar.

## Material and Methods

This cross-sectional study was conducted in the college of Medicine from September to November 2020 after obtaining approval from the Local Committee of Bioethics at Northern Border University, Arar. A multistage stratified random sampling method was used to select 270 clinical year's medical students (4<sup>th</sup> - 6<sup>th</sup> year) from the Faculty of Medicine. They were asked about the assessment methods, whether they are comprehensive, whether they reflect what they taught in the curriculum, and whether the assessment methods challenging

the participants more than making them just memorize. Students' perceptions of the preferred type of traditional written exams MCQs, short essay questions (SEQs) as good tools for assessing basic theoretical knowledge regarding the subject were determined. Moreover, the adequacy of the number of MCQs in each exam and the number of MCQs exams per course were also queried. Perceptions towards problem-based learning (PBL), Objective Structured Clinical Examination (OSCE), and Objective Structured Practical Examination (OSPE), clinical short and long cases were evaluated. Additionally, students' perceptions towards relatively recent non-traditional methods such as log book, assignments, open-book exam, seminars and clinical presentations were also determined. The participants were requested to fulfill a validated, confidential, and self-administrated questionnaire to assess the degree of agreement on a 3-point Likert scale, with possible answers ranging from 1: "Agree, 2:neutral to 3: disagree". The aim of this study was explained to the participants and re-assured them that the data gathered will remain confidential. Data collected were entered in a master chart and analyzed using Excel-2019 with the help of a medical statistician. The data were summarized in the form of proportions and frequency tables in excel -2019 spreadsheet.

## Results

This study included 270 medical students from clinical side 4<sup>th</sup> - 6<sup>th</sup> year, of whom, 162 (60%) were females and 108 (40%) were males. It was found that 27 %, 35%, 38 % of the participants enrolled in the fourth, fifth and sixth year, respectively. Only 49% of respondents agreed that their assessment methods are comprehensive, and 46% agreed that assessments reflect what is taught in the curriculum. Furthermore, 44% of them agreed that assessment strategies are more challenging than making them memorize. Concerning the preferred written examination assessment format, MCQs were the most commonly preferred exam formats by both genders, followed by the short essay question (SEQs). MCQs exam format was slightly more preferred by male students than females. On the other hand, both males (28%) and female (23%) students do not prefer the short essay question (SEQs) as an assessment format. Regarding written exams, 60% of respondents observed that MCQs exams are fair format, while (65.0%) agreed that the numbers of MCQs is enough in each exam. In terms of clinical assessment, 56.6% of participants agreed that OSCE is a good format for assessing clinical competencies, and that the number of OSCE stations is suitable. On the other hand, 42.8% of them agreed that the time assigned to each station is sufficient. However, 54.8% of applicants viewed that OSPE is a good format of clinical assessment, and 65% agreed that the number of OSPE stations are reasonable. On the other hand, only 45.5% of them viewed that the time allocated for each station is enough, as shown in Table 1.

In the current study, about more than one-half (56%) of the students examined by the OSCE preferred to be examined in real patients, followed by the simulated patients (30%) and on a model of the human body (manikin) (14%). However, 52.6% of students agreed that long and short clinical cases were real assessment tools for clinical competencies; male

students (63%) preferred more than female students (37%). In the present study, there are no statistical differences between both genders regarding their preferences of other new non-traditional assessment methods as log book, assignments, open-book exams, clinical presentations and seminars, as shown in Table 2.

**Table 1.** Degree of agreement of medical students regarding different assessment tools used at Northern Border University

Degree of agreement	Agree		Neutral		Disagree	
Assessment	No.	%	No.	%	No.	%
General assessment methods:						
Comprehensiveness of assessment	132	49%	95	35%	43	16%
Reflection of the curriculum	125	46%	100	37%	45	17%
Challenging more than memorizing	120	44%	84	31%	66	24%
Written Exams:						
MCQs are fair assessment format	162	60%	63	23%	45	17%
Number of MCQs exams is enough	175	65%	63	23%	32	12%
Short Essay Questions (SEQs)						
SEQs are fair assessment format	68	25%	97	36%	105	39%
Number of questions is enough	108	40%	86	32%	76	28%
OSCE Exam:						
Assessing Clinical competence	153	56.6%	64	24%	53	19.4%
Number of stations is appropriate	175	65%	45	16.6 %	50	18.4 %
Duration of each station is appropriate	115	42.8%	32	12.2%	123	45.5 %
OSPE Exam:						
Assessing clinical competence	148	54.8 %	58	21.2%	64	24%
Number of stations in OSPE is enough	175	65%	32	12%	63	23.2%
Duration of each station is appropriate	123	45.5%	50	18.5%	97	36%
Clinical long and short cases :						
Good method for assessing clinical knowledge	142	52.6%	60	22%	78	25.4%
Quick approach capability	150	55.5%	78	25.4%	42	19.1%
Multiple examiners affect performance	140	51.85%	60	22.25%	70	25.9%

**Table 2.** Perception of new methods of assessment by medical students according to gender

Assessment Gender	Male		Female		Total	
	No.	%	No.	%	No.	%
Problem- based learning (PBL):						
Agree	88	81.4	95	58.6	183	67.7
Disagree	20	19	67	25	87	32.3
Assignments/ Log book:						
Agree	81	75	115	70.9	196	72.5
Disagree	27	25	47	29.1	55	27.5
Open book exam:						
Agree	65	60	106	66.6	171	63.3
Disagree	43	40	56	33.4	99	36.7
Clinical Presentation /Seminars:						
Agree	68	62.9	105	64.81	173	64
Disagree	40	37.1	57	35.19	97	36

## Discussion

In medical education, assessment is entering every phase of professional development. Validity and reliability are important criteria for a good assessment. For assessment to have any real impact on learning, it has to be context relevant. Students’ perceptions of their assessments can be used in the process of improving the quality of assessment, educational programs, student learning and performance [12]. The modern educational theory suggests that learning is facilitated when tasks are integrated [13]. The concept of “assessment drives learning” is accepted as one of the main pillars of high-quality assessment practice [14]. The majority of participants in the current study agreed that clarification of the assessment method from the beginning of the course improves their performance. It is essential that the assessment tasks mirror the learning objectives and curriculum contents [15]. The ability of students to retrieve data in assessments should follow Bloom’s taxonomy [16]. The current study found that about 49% of participants agreed that assessment methods are comprehensive, reflect what they taught in the curriculum (46%), and 44% of them agreed that assessment strategies are more challenging than making them memorize. Similar results (39.5%; 35.8%; 41.2%) were reported in the study by Ibrahim NK et al

This indicates that the assessment plan needs further improvement to meet the expectations of medical students. Multiple- choice questions have been widely used for summative assessment in undergraduate medical education because of their convenient standardization, efficient testing for large classes and a broad sampling of knowledge. In the current study, MCQs exams were preferred as a written assessment format more than short essay questions, which is consistent with other studies [17,18]. The females preferred MCQs slightly more (62.5%) than males (60%). Similar results (57.9% and 55.5%) were reported in a study by Ibrahim NK et al. [19]. Regarding clinical assessment, 56.6% of participants, agreed that the OSCE is a good format for assessing clinical competencies and that the numbers of OSCE stations are appropriate (65%), which coincides with many other studies by Hashmi NR et al and Raheel H et al.[20,21] Furthermore, only 42.8% of respondents reported that the time assigned for each OSCE station is adequate, which is consistent with the results of the study by Siddiqui FG et al [22]. The present study revealed that (54.8 %) of medical students agreed that OSPE is a good way of assessment of clinical competencies, and similar results were reported in the studies by Abraham RR et al and Menezes RG et al [23,24]. However, about 65% of our participants agreed that the number of OSCE stations is fair and the time allotted for each OSPE station was adequate, which coincides with the results of other study (66.3%) and (51.3%), respectively [19]. Regarding new assessment methods, recent literature has shown that females had significantly better perceptions towards peer assessment compared to males. In a study by Consorti F et al., female medical students showed higher levels of concern regarding peer assessment compared to males [25]. Concerning the students’ perception towards assignments or log book, our results illustrated that 72.5% of respondents agreed that it is a useful assessment format for knowledge of a subject. Similar results were reported in the study by Ibrahim NK et al., which

found that log book was considered a useful way of assessment by 68.5% of respondents. Our results showed that most of the participants reported that receiving examinations feedback improves their performance. Clarification of assessment methods, formative assessment and feedback can enhance the performance of medical students.

The limitations of this study were medical students of basic sciences from 1<sup>st</sup> year to 3<sup>rd</sup> year.

### Conclusion

The assessment plan needs further improvements and should be designed prospectively along with learning outcomes. The proposed Assessment directed medical education (ADME) curriculum is based on our knowledge that assessment drives learning. Adding more innovative methods of assessment as open book, self and peer assessment is required. Additional studies are recommended for a better understanding of students' perceptions towards different innovative assessment formats. Our assessments need further improvement for better preparation of medical students for their future role as tomorrow's young doctors.

### Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

### Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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### Conflict of interest

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